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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,365	01/23/2004	James Joseph Hart	06408 USA	7593

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AIR PRODUCTS AND CHEMICALS, INC.  
PATENT DEPARTMENT  
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EXAMINER
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JOHNSON, EDWARD M

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 01/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/763,365

Applicant(s)

HART ET AL.

Examiner

Edward M. Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7 is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-6, 8-9, and 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woytek et al. US 4,091,081.

Regarding claims 1 and 14, Woytek '081 discloses a method for preparing nitrogen trifluoride comprising removal of HF (see column 5, lines 19-23) and recovering nitrogen trifluoride product.

Woytek fails to disclose removing fluorine and nitrogen oxides.

It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to remove fluorine and nitrogen oxide because Woytek discloses conversion of fluorine (see Example 5) and oxides of nitrogen or oxygen difluoride as potential starting material (see column 1, lines 25-29 and 35-38), which would obviously, to one of

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ordinary skill, suggest removal of those substances to obtain a purified stream of nitrogen trifluoride product as disclosed.

Regarding claims 2, 4-6, and 16-18, Woytek '081 discloses contact with KOH (see Example 1), which would at least suggest alkaline earth hydroxides including magnesium or calcium hydroxide.

Regarding claim 3, Woytek '081 discloses reaction of fluorine with ammonium acid fluoride (see column 3, line 8).

Regarding claims 8-9, Woytek '081 discloses removal of HF in the product recovery unit (see column 4, lines 30-32).

Regarding claim 12, Woytek '081 discloses condensing the water, which would obviously, to one of ordinary skill, suggest distillation (see column 5, lines 24-26).

Regarding claim 13 and 19-20, Woytek '081 discloses molecular sieve dryers, which would obviously, to one of ordinary skill, suggest carbon molecular sieve (see column 5, lines 26-29).

Regarding claim 15, Woytek '081 discloses 94.1% fluorine conversion, which would at least suggest a balance of 5.9% fluorine.

3. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woytek '081 as applied to claim 4 above, and further in view of Aritsuka et al. US 4,933,158.

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Regarding claims 10-11, Woytek fails to disclose mordenite or chabazite zeolite.

Aritsuka '158 discloses mordenite or chabazite zeolite.

It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the zeolites of Aritsuka in the nitrogen trifluoride purification process of Woytek because Aritsuka discloses the zeolites in a process for purifying nitrogen trifluoride efficiently and economically with a high adsorbability (see column 2, lines 15-24) and Woytek discloses molecular sieve dryers (see column 5, lines 25-29).

***Allowable Subject Matter***

4. Claim 7 is allowed.

***Response to Arguments***

5. Applicant's arguments filed 11/25/05 have been fully considered but they are not persuasive.

It is argued that it is respectfully submitted that the Examiner has failed to grasp... purification of  $\text{NF}_3$ . This is not persuasive because Woytek does not "generate  $\text{OF}_2$ ," as Applicant appears to suggest. Rather, oxygen difluoride is disclosed as a known prior art material but not in the disclosed invention of the prior art. And, in any case, the fact that applicant has recognized another advantage which would flow naturally from

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following the suggestion of the prior art (the absence of oxygen difluoride and/or removal of water) cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). Woytek discloses conversion of fluorine (see Example 5) and oxides of nitrogen or oxygen difluoride as potential starting material (see column 1, lines 25-29 and 35-38), which would motivate an ordinary artisan to remove those substances to obtain a purified stream of nitrogen trifluoride product, as disclosed.

It is argued that having pointed out the features of Applicant's invention... become apparent. This is not persuasive because Applicant does not claim a process wherein no "water is present," as Applicant appears to suggest. Rather, Applicant merely claims a process without generating OF<sub>2</sub>. Since there is no disclosure of generating OF<sub>2</sub> in Woytek, the claim is met. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a process wherein no "water is present") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read

into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

It is argued that with respect to the Examiner's allegation at the bottom of page 2... of claim 1. This is not persuasive because a preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

It is argued that summarizing, in view of the fact that Woytek... §103(a). This is not persuasive for the reasons above.

It is argued that it is respectfully submitted that Artisuka, et al is irrelevant... the purification process. This is not persuasive because Aritsuka is not relied upon for a disclosure of avoiding formation of oxygen difluoride, which is rendered obvious by Woytek. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

**Conclusion**

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward M. Johnson whose telephone number is 571-272-1352. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Edward M. Johnson  
Primary Examiner  
Art Unit 1754

EMJ